Part 302 – Nutrient Management Policy Implementation

302.0 Purpose

A. In December 2011, the Natural Resources Conservation Service (NRCS) adopted a new policy for providing nutrient management-related technical assistance. The policy is contained in Title 190, General Manual (GM), Part 402, Nutrient Management. The National Conservation Practice Standard (CPS) Code 590, Nutrient Management which provides standards and specifications for the nutrient management and nutrient risk assessment processes was also revised.

B. The information in this instruction is provided to assist States in implementing 190 GM Part 402, CPS Code 590, and NRCS-approved nitrogen and phosphorus risk assessments.

C. With the exception of NRCS seeding and planting type conservation practices requiring nutrient applications for plant establishment, the amount, source, placement, and timing of plant nutrients (fertilizer and manure) to agricultural landscapes, is covered by the CPS Code 590. CPS Code 633, Waste Recycling, covers the use of agricultural or nonagricultural by-products for energy and conservation benefits (non-nutrient).

D. States must comply with erosion, nitrogen, and phosphorus risk-assessment criteria by January 1, 2013.

302.1 Cancellation

This national instruction supersedes Title 190, National Instruction (NI), Part 302, Nutrient Management Policy Implementation, dated December 2006.

302.2 Technical Criteria for Risk Assessments Used in Nutrient Planning

A. Erosion Risk Assessment Criteria**.**

Planners must use current NRCS nationally approved erosion-prediction technology to assess the risk of nutrient loss due to wind and water erosion.

B. Nitrogen Risk Assessment Criteria.

(1) Leaching Index.—The current NRCS-approved tool to assess the nitrogen leaching potential is the Leaching Index (LI). If States have not already developed tables for the use of the LI, the Revised Universal Soil Loss Equation (RUSLE) 2 calculates LI values for the selected soil and climate. Interpretations of the LI values can be found in the chapter, "*Water Percolation: An Indicator of Nitrogen-Leaching Potential*". (Williams, J.R., and D.E. Kissell, 1991. *Water Percolation: An Indicator of Nitrogen-Leaching Potential.* In Follett, Keeney and Cruse (eds). Managing Nitrogen for Groundwater Quality and Farm Profitability. SSSA, Madison, WI, pp 80-81.)

(i) At the State and county levels, NRCS must run sufficient field scenarios to establish geographic regions and map units within the State where nitrogen (N) leaching <u>is not</u> a potential risk to water quality. With the concurrence of the State water quality control authorities, no nitrogen leaching assessment is required in these scenarios.

(ii) When N leaching is a resource concern, planners must use the NRCS-approved nutrient risk assessment for N on all sites.

(2) Nutrient Tracking Tool (NTT).—The NTT is currently under development for use by NRCS to assess the risk of nitrogen and phosphorus loss through surface runoff and leaching. When directed, States will adopt the NTT to replace the LI.

C. Phosphorus Risk Assessment Criteria.

(1) Planners must use NRCS nationally approved phosphorus risk assessment technology. The application of phosphorus (P) shall be in accordance with a nutrient plan based on a NRCS National and State-approved P loss risk assessment (P-Index) or NTT (when available).

(2) P-Index Assessment Requirement.—The NRCS-approved nutrient risk assessment for P shall be completed when:

(i) P application rates exceed land-grant university fertility rate guidelines for the planned crop(s), or
(ii) The planned area is within a P-impaired watershed (a watershed containing one or more impaired water bodies, i.e., water bodies that are not attaining one of more State water quality standards), or when
(iii) The site-specific conditions equating to low risk of P loss have not been determined by the NRCS and State water quality control authority.

(3) A P-Index assessment shall not be required when the State NRCS, with concurrence of the State water quality control authority, has determined specific conditions where the risk of P loss to local water is low. Fields excluded from P risk assessment must have a documented agronomic need for P, based on soil test phosphorus (STP) and land-grant university nutrient recommendations. States can use a prescreening tool to expedite the decision as to whether or not a P-Index is required.

(4) When the State-designated low risk condition is granted, producers are required to meet all other field-specific NRCS conservation objectives and standards, including erosion control, manure application setbacks, proper timing of manure application, and annual N limits for the crop. These conservation requirements apply to all nutrient applications independent of source in compliance with CPS Code 590, Nutrient Management.

(5) The NTT is currently under development for use by NRCS to assess the risk of nitrogen and phosphorus loss through surface runoff and leaching. When directed, States will adopt the NTT to replace the P-Index or other current State P-Risk assessments.

D. Minimum Criteria for State P-Index Tools

The State P-Index tool must:

(i) Consider nutrient losses caused by water and wind erosion using current NRCS water and wind erosion prediction technology. Where soil loss is not automatically entered into the P-Index, the values must be manually entered.
(ii) At a minimum, consider STP; time, rate, and method of P application; erosion; runoff; and leaching (when leaching is applicable) factors in the assessment of P-loss risk from fields.
(iii) Demonstrate that risk increases with increasing runoff, erosion, STP, application rate, and also depends on method of application (surface application versus injection/incorporation), and leaching (when leaching is applicable) factors.
(iv) Include the following risk categories:

- Low risk—phosphorus can be applied at rates greater than crop removal not to exceed the nitrogen requirement for the succeeding crop
- Moderate risk—phosphorus can be applied not to exceed the crop removal rate
- High risk— phosphorus can be applied not to exceed the crop removal rate if the following requirements are met:
  - A soil phosphorus drawdown strategy has been implemented, and
  - A site assessment for nutrients and soil loss has been conducted to determine if mitigation practices are required to protect water quality.
  - Any deviation from these high risk requirements must have the approval of the Chief of the NRCS.

(v) When manure or organic by-products are applied, the erosion component of the P-Index must be based on the annual soil-loss rate for the year in which the manure is applied. Years in the cropping rotation not receiving manure can use a rotational average soil-erosion rate. Note: Annual soil-loss rates are automatically calculated by RUSLE2 as part of the erosion rate calculation.

(vi) The P-Index must "zero-out" at some point (environmental threshold). There is a point above which the risk of P loss from a field is too great to warrant the application of P in any form. States must establish an upper limit of STP above which manure cannot be applied regardless of the P-Index results. The following approaches may be used to set this threshold:

- Drawdown STP level (e.g., set a number of years to be drawn down to optimum nutrient levels under normal cropping conditions before additional nutrients can be added.)
- Where field-based research has been conducted to develop this upper limit, this State-specific information should be used to establish the zero-out limit.

E. Standardization of State P-Index Tools

(1) All NRCS P-Index tools must be calibrated using the NTT, or other suitable NRCS-approved tool, to standardize the P-loss risk categories (e.g., low, moderate, and high). This calibration will be completed by the NRCS Conservation Effects Assessment Program (CEAP) staff, and other NRCS and national experts. NTT-defined risk levels will then be used to calibrate State P-Index tools, as needed, to standardize risk categories across regional, State, or watershed boundaries. The NTT-calibrated P-Index will associate each risk category with the P content in runoff based on local data. For example,

(i) Low— < 2 pounds (lb) P per (/) acre in runoff

(ii) Moderate—2 to 5 lb P/acre in runoff

(iii) High— > 5 lb P/acre in runoff

(2) The NTT will be developed and field tested by means of Chesapeake Bay Watershed and Kansas and Kentucky pilot studies. Guidance regarding P-Index evaluations will be delivered to States at a future date, pending results from the pilot studies.

F. Phosphorus Applications

(1) If increases in soil phosphorus levels are expected (i.e., when N-based application rates are used), the nutrient management plan shall document:

(i) The soil P levels at which it is desirable to convert to a P-based planning and no phosphorus applications allowed;

(ii) The proposed plan for STP drawdown from the production and harvesting of crops; and

(iii) Management activities or techniques used to reduce the potential for P transport and loss.

(2) When commercial P nutrient sources are used, the planned rate of P application must not exceed land-grant university fertilizer recommendations. Lower than recommended rates are acceptable when the producer's yield-goal objectives can be met.

(3) When manure or organic by-products are used, the planned rates of phosphorus application must be consistent with the current NRCS-approved P-Index.

(4) A "P-Banking/Multiple Year P-Application" strategy can be used if the practice is defined and endorsed by the land-grant university for delivery of nutrients to crops with documented minimal negative environmental consequences. Manure P can be applied at a rate to meet the recommendation for multiple crop years (length to be determined by each State). For example, with a 3-year limit, a grower could apply manure (based on the total P concentration of manure) in 1 year to meet 3 years of crop P need, as long as crop N recommendations are not exceeded. In that example, no additional P is applied in the current or 2 additional years. States must provide additional guidance relating requirements for additional conservation practices that have been shown to minimize P runoff (e.g., incorporation, injection).